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can be made of the flowers in defining varieties of apples. This may seem a simple matter to botanists, but it must be new to most pomologists, for some of the best of them say there is little difference in the flowers of apples.

ZOOLOGY.

Note on the Synonymy of Telea Polyphemus.* — In a paper read before the Royal Dublin Society, March 18, 1872, Mr. W. F. Kirby prefers the name *paphia* L., for our common species of Telea, and says: "It has, I think, been questioned whether Cramer's *Attacus polyphemus*, from Jamaica, is identical with this common species." It is Dr. Packard who writes of Cramer's figures under the names "Cecropia," "Polyphemus" and "Promethea," as received from the West Indies, that they "would lead one to suppose that they represented distinct species," from those we know from the United States under these names (Proc. Ent. Soc. Phil., 1864, p. 381).

Having received *Telea Polyphemus* from Matamoras, collected by my brother, Capt. F. Harris Grote, and it having been recorded from California by Mr. H. Edwards, we can assign a wide range to this species. Farther to the southward it may be replaced by the Mexican *Telea Montezuma* Grote, Trans. Am. Ent. Soc., 2, p. 118. My studies of this Bombycid lead me to believe that the typical Attaci are entirely unrepresented in the West India Islands. The positive demonstration of this as a fact would be highly interesting as throwing some light on the geological history of the Islands. I am, then, inclined to regard Cramer's habitat for our Attaci as erroneous, and to account for the discrepancies of his figures, by an infidelity of execution.

I do not find any description of a species of Attacus under the name Polyphemus by Linné. The first description seems to be that of Cramer, and the species is afterwards described under the same name by Fabricius (Species Insectorum). This corrects the synonymy proposed by Dr. Packard, who cites Linné as authority for the species, referring to the "Syst. Nat. (1767)."

Linné describes his *B. paphia* first in "Syst. N. X." 1758, as from "Guinea," p. 496, No. 4, and cites "Petiv. Gazoph." tab.

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* I am indebted to Dr. Hermann A. Hagen of Cambridge, Mass., for bibliognostic information used in the present article.

29, f. 3, which I cannot consult and, *doubtfully*, "Catesby" Car. 2, p. 91, tab. 91. The species intended by Linné cannot, I think, be our Polyphemus.

In Mus. Lud. Ulr. 1764, p. 369, No. 4, Linné describes in extenso *B. paphia* from septentrional America, and cites Catesby, this time without doubt, as also Petiver and Rumphius. The description hardly applies to our species, but this is the only one that admits of the probability. Finally in the twelfth edition of the "Systema Naturæ," 1767, p. 809, No. 4, Linné cites Catesby *again* with *doubt*, and gives Guinea, Asia, as the habitat of his *B. paphia*.

Of his *B. paphia* (Mus. Lud. Ulr.) Linné says: "Ocellus primoris similes in medio; postice pallidiores versus marginem et obsolete undulate," and "Ocelli utriusque alæ in mare oblonga, in femina orbiculati, quorum qui in aliis posticis cincti nigr. violacea," which in part does not agree with our species.

I think, then, that the *B. paphia* of Linné's tenth and twelfth editions of his "Systema Naturæ" is not our Polyphemus, while that of his Mus. Lud. Ulr. may be. This latter will not affect the specific name of our common species, which appears to be confined to continental North America and not to occur in the West Indies.—AUG. R. GROTE.

THE REVERSION OF THOROUGHBRED ANIMALS.*—The improvement in live stock has been greater than in tillage. It has been accomplished by (1) selection of breeding animals, and (2) by care of them. Both of these are essential. Starved animals will not thrive, no matter how well bred, and no skill in care and feeding will give from poor breeds the best of animals. Special excellences are the accumulated improvements of several generations.

It is often claimed that if the care of man be withdrawn the improved breed will retrace the steps of its ancestry and revert to its original characteristics. This theory has been made a dogma and the basis of deductions regarding the permanence of original types and the fleeting nature of acquired characters. The dogma finds a place in scientific literature in papers read before learned societies, and from these sources the notion spreads through our popular literature. It has weight with a class of farmers who do not wish to expend money and care on their live stock—to have the best and care for it in the best manner. They suppose that the moment their care is withdrawn, the objects of it will begin to "revert" to original inferiority. This wide-spread belief greatly impedes the general improvement of live stock.

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* Read at the Hartford Meeting of the Amer. Assoc. Adv. Science.

Instances of this alleged "reversion" were brought forward at the last annual meeting of this Association, and are printed among the papers then delivered. About a month later there was a meeting held in a neighboring state. Stock breeders came from England, from California, from even the very state where they had just been told that "shorthorns" were prone to return to their original state. The meeting was for the sale of improved animals, and in 30 minutes the sale of shorthorns amounted to $250,000, and there also, within a very short time, 109 head of cattle were sold for $382,000. For 5 cows—the Duchess strain—$158,000 were paid—all showing the faith of the purchasers in the permanence of the improved stock.

For some years Prof. Brewer has been investigating this subject and seeking for proof of the alleged tendency to reversion. The inquiry only covered "*thoroughbreds*," and not "grades" nor "mongrels." To carefully worded inquiries in writing, following upon every report of such "reversion," Prof. Brewer has received very numerous replies, and they are unanimously in the negative. This is certainly remarkable, following upon the confident assertions that animals so frequently exhibited the alleged tendency. The inquiries were pushed in the specific localities where the reversion was said to have occurred; the questions have been put to a large number of stock-breeders, and finally have been made by means of a printed circular. But the result was always the same, except that a smile of incredulity extended over the faces of some stock breeders when such inquiries were put to them, and they feared they were to be made the victims of a "sell." No instances of the alleged "reversion" having been authenticated in Prof. Brewer's experience, he asks the Association to aid in exposing and refuting the pernicious notion.

Deep Sea Explorations.—In a letter written by Professor Wyville Thompson, in charge of the "Challenger" Expedition, we have some account of the dredgings at great depths in the Antarctic Ocean. After leaving the Cape of Good Hope, several dredgings were taken a little to the southward, at depths from 100 to 150 fathoms. Animal life was very abundant, and it was found that the general character of the fauna was very similar to that of the North Atlantic — many of the species even being identical with those on the coasts of Great Britain and Norway. Between Prince Edward's Island and the Crozets they trawled in 1,375 and 1600 fathoms, and many new forms, including two stalked crinoids and some deep-sea sponges and sea-urchins, occurred. Off Kerguelen Island, a fine sponge (Rossella) — probably the *Rossella antarctica* — originally dredged by Sir James C. Ross, near the ice-barrier, was obtained. At their most southerly station — lat. 65° 42′ south, long. 79° 49′ east — the trawl brought up from a depth of 1,675 fathoms a considerable number of sponges and other deep-sea forms. Dredgings with similar results were made in 1,800 and 1,900 fathoms. Again at a depth of 2,600 fathoms Holothurians were abundant, with several star-fishes and Actiniæ and an "elegant little Brachiopod." By using the towing net from the surface as deep down as 150 fathoms, Mr. Murray, one of the party, infers "that the bulk of the material of the bottom in deep water is in all cases derived from the surface."

THE CHESTNUT-SIDED WARBLER.—In the account of the chestnut-sided warbler (*Dendroica Pensylvanica*) in vol. I of "North American Birds," Dr. Brewer states that "it is not known to breed farther south than Massachusetts." On May 19, 1871, I shot a female of this bird off a nest of four eggs, at White Sulphur Springs, West Virginia. This locality is about 2000 feet above the sea and somewhat below lat. 38. The nest was eighteen inches above ground in a small thorn bush in a swampy thicket. With the exception of being slightly smaller, and having the chestnut side streak more faintly developed this bird does not appreciably differ from specimens I have from Canada.—ARTHUR C. STARK, *Hillstead*, *Torquay*, *England*, *Oct.* 29, 1874.

EMBRYOLOGY OF THE BRACHIOPODS.—Kowalevsky has published a fully illustrated paper on this subject in the "Memoires" of the Academy of Science at St. Petersburg. It gives an account of the embryology of Argiope and other genera, and is fully corroborative of the studies of Prof. Morse and his opinion that the Brachiopods are closely allied to the Chætopod worms. A number of interesting sections of the embryo are figured. At one stage the larva would easily be mistaken for that of a worm. On another occasion he writes that "it was while fresh from the impression produced on me by the views of the American scientist that I write the last portion of my general review, although I had previously arrived myself tò the conclusion, based upon the homologies of the muscles and setæ, that the Brachiopods are nearly allied to the Chætopod Annelides."

METAMORPHOSES OF THE HAIR WORM.—M. Villot is publishing a monograph of the Hair Worms in the "Archives de Zoologie Experimentale." He has found the larvæ encysted in the larvæ of Chironomus, and afterwards in the mucous lining of the intestines of fishes, in September. Thus their metamorphoses have been, in conjunction with the previous labors of Grube, Leidy, and Meissner, cleared up. The larvæ are tadpole-shaped. The habits of Gordius seem quite distinct from Mermis, found living in insects.

A NEW ORDER OF HYDROZOA.—Prof. Allman publishes in "Nature" a brief account of his discovery of a French hydroid embedded in a sponge, which he describes under the name of *Stephanoscyphus mirabilis*, and regards as the type of a new order termed *Thecomedusæ*. He regards this animal as a compound hydrozoon, "whose zooids are included in cup-like receptacles resembling the hydrothecæ of the calyptoblastic hydroids; but these zooids, instead of being constructed like the hydranths of a hydroid are formed on the plan of a medusa. It has plainly very decided affinities with the Hydroida, but it is nevertheless removed from these by a distance at least as great as that which separates from them the Siphonophora."

BIRDS OF KANSAS.—Since the publication of the second edition of my catalogue of the birds of Kansas (Oct., 1872), six additional species have been observed; viz: *Colaptes Mexicanus*, *Helmitherus vermivorus*, *Dendrœca striata*, *D. maculosa*, *Larus Delawarensis* and *Podiceps auritus* var. *Californicus*.—F. H. SNOW.

OSTRICH BREEDING.—The success which has attended the ostrich-breeding farms in South Africa has induced some French gentlemen to endeavor to imitate the system in Algeria, and African birds have also been sent to La Plata and other countries in South America, where it is hoped they may take the place of the native birds, which are inferior in quality to the African ostrich. Generally speaking, the system on which ostrich farms are conducted is as follows:—The birds kept for breeding purposes, about three years old, are placed in separate paddocks, in pairs, and their eggs are either hatched in the natural way or placed in incubators prepared for the purpose. By this means a larger proportion of eggs is hatched. The young birds are fed on grass, lucern, and other vegetable matters, and are sheltered at night. Each pair of birds will produce about twenty chickens, which may be plucked when they are about eighteen months old, before which time the feathers are not of much value. The price of good ostrich feathers, wholesale, is about 40 *l.* per pound weight. If the birds are well kept, and have plenty of exercise and food, their feathers are of good quality; but the plumage of wild birds is considered superior to that of inferior tame ones. The value of each year's plucking from the young birds is about 7 *l.*, and of the birds themselves six months old is 30 *l.* to 35 *l.* The breeding birds are worth 125 *l.* per pair.—*Nature.*

CASE OF A DOG NURSING A KITTEN. — Mr. John Downing, residing at No. 27 Morgan Street, has a female dog of some breed of setter, which has not been pregnant for upwards of three years. At her last pregnancy she gave birth to six pups, of which one only was allowed to survive; this one was continued with her only six months. Since then she has been entirely alone, and spends her days in a close yard and her nights in a house.

She has always been averse to the society of cats, repelling all their advances towards friendship. About two months ago the family procured a very small kitten, and the dog was soon observed to keep it near her, and rather tagged it around. About four weeks ago the dog was observed to be nursing the kitten, and has steadily given it milk ever since. The four posterior mammæ are a little tumefied, but the forward ones are as flat as in an unimpregnated puppy. Upon gentle pressure, an abundant flow of milk readily shows itself, and what seems remarkable, from all the teats alike. The kitten thrives vigorously, which seems to demonstrate that the milk is a normal secretion. As soon as the kitten approaches the dog, she lies down and offers herself to the kitten as to her own offspring, and the kitten purrs itself to sleep while nursing, apparently regarding its adopted mother as a perfectly normal substitute for its natural nurse. — F. H. WILLIAMS, 70 *Mulberry St.*, *Hartford*, *Oct.* 26, 1874.